

## How the Stack Was Straightened

A Story of a Mechanical Genius

By SAMUEL G. MONTFORD

"Happy the man who has found his vocation." This is an old adage which in these times, when life seems too short to learn a profession before middle age, the saying should be, "Happy the boy in whom some especial gift shows itself that can be later on turned to success."

Tom Swartout, a farmer's son, seemed to his father to be worthless because, as the older man said, he was too lazy to eat. And there was reason for the imputation. Tom detested farm work. The hoe handle would never stick to his hands, or if it did he would constantly be stopping in his work to look up in the sky at some bird soaring above and wonder how it kept a fixed position without the slightest visible motion of its wings.

Under the circumstances life was intolerable to Tom and his parents. No one can blame fathers and mothers whose children seem to be useless for showing their disappointment. Tom knew that he was a disappointment, and one night after an expression of his father's disapproval he resolved to leave home and go somewhere else in the morning, long before dawn and before any one was stirring on the farm, he got out of bed, dressed himself and started down the road he knew not whither.

Then followed hardships that might have been expected. A week after his departure he stopped at an open door of a factory to look in at an engine that was moving machinery distributed through a whole building. There was something in the regular and continued stroke of the piston, the steady revolution of the flywheel, that fascinated the boy. He wondered what kept it going. He had seen machinery on the farm moved by hand power, but nothing driven by heat. While he was looking the engineer, a pale man, who was evidently suffering from some disease, began to shovel coal into the furnace. The work was evidently hard on him, and he stopped to rest between every shovelful.

"I'll do that for you," said Tom. The man looked at him, then, taking a cue from his pocket, said: "I wish you would."

Tom put in the coal, then asked the engineer all about the engine—the principles on which it worked, what the piston accomplished, why the flywheel was there, how uniform motion was achieved and a lot of other questions. The man answered his questions and was surprised at how quickly he understood the explanations. Then Tom told him that he had left home, and no means of a livelihood and asked if he might not shovel coal and do odd jobs about the engine room.

The engineer went into the office, and when he came back told Tom that he could stay at a salary of \$4 a week. The boy was beside himself with joy.

One day a wooden post that was a part of one of the machines in the building and that was intended to turn on a pivot like a rudder post began to open in fissures as it turned. Every time it turned the fissures grew larger, and it was evident the post would soon be twisted in two. Some work that had been promised the next morning was dependent on the machine, and there was no time to put in a new post. Tom stood beside the foreman, who was looking at the post not knowing what to do.

"Get some wedges," said the foreman, "and every time the fissures open fill them up."

The foreman turned to the begrimed boy in astonishment. Then the wedges were brought, driven in and the post was again rigid.

The incident advanced Tom many paces in the opinion of his employers, and they tried him in various places where good work was needed, but he failed in them all. He had no aptitude for work that did not interest him. It was drudgery, and he had not been made for drudgery any more in a factory than on a farm. There seemed nothing that he could do but assist the engineer, who was a sickly man and often was obliged to absent himself from his duties. So Tom was sent back to the engine room and made an assistant engineer. At this work he seemed to get on better than at anything else, for he loved the machine that could keep the mills supplied with power all day—and at night, for that matter—without getting tired. In its own field, though senseless iron, it was better than a man. The man consumes different kinds of food; coal alone would feed the engine. The man must stop for sleep and rest; the engine need never stop.

Several years passed during which Tom got no farther up in the ladder of success than assistant engineer. There was a vague idea among his fellows and his employers that he was born for success, but there was a screw loose somewhere in his bodily mechanism. One day when he was a grown man his opportunity came, and the only person unconscious of its arrival was Tom himself.

He made the discovery that the smokestack, a huge brick, hollow, round tower set on a square base and a hundred feet high, had lost its original

perpendicular position, veering at the top about two and a half feet. With in a few days it was found to veer six inches more. At this rate it would not be long before it would fall, not only a ruin in itself, but crushing one of the most costly wings of the factory.

The management were in sore distress. They were in the midst of their busiest manufacturing season, yet work must be stopped while the chimney, valuable as it was, must come down to be replaced by a new one. First a scaffolding to the top must be erected, brick after brick must come off, then be replaced from the bottom till the stack reached its original height, standing perpendicular from its base.

Tom, having reported the matter to his employers, was forgotten by them in their anxiety about the chimney. The same evening they called a meeting of engineers and builders to discuss some means of propping the chimney to tide them over the busy season. Not an expedient was suggested that could be relied upon. If the stack should fall and wreck the wing, the loss would be far greater than that occasioned by stopping work while the chimney was being taken down and rebuilt. The propping plan was abandoned, and the meeting adjourned with the understanding that the stack must come down.

The next morning Tom Swartout in overalls went into the office of Mr. Rogers, president of the corporation, and, leaning his bare arms, black with coal dust and grease, on a rosewood railing, said reflectively:

"Mr. Rogers, I've been wondering if a way of straightening the stack I've been thinking about wouldn't work."

"You've been thinking about it? Do you know that last night we had the best engineers in the country here discussing the matter, and they all agreed the stack must come down."

Tom was about to take his departure when the president asked: "What's your plan?"

"Why, you know the base is square," "Well?"

"And the stack leans in a perpendicular line with one of the faces of the base."

"Yes."

"Now, if a line of brick on the sides of the base other than that in the direction the stack leans could be removed, the stack would settle on that side, swinging the top toward the perpendicular."

"The removal of brick under so heavy a weight would be impracticable."

"I was wondering if it couldn't be done in this way: Remove the brick at intervals, so as to leave several little pillars for support. Now, supposing we wish to take out three inches of the brick, we begin by removing six inches on the other three sides, filling up the spaces with blocks of wood of equal thickness, leaving three sides of wood instead of brick. Between the blocks put in brick piers three inches high, which would leave a space of three inches, the distance required to right the stack, between the top of the piers and the top of the brick piers. This done, burn out the woodwork, and the upper brickwork of your base gradually sinks down on to the piers."

Tom made this suggestion with no more consciousness of its importance and ingenuity than if he had prepared a plan for mending a broken machine. As he progressed the president kept his eyes fixed on him with a growing interest mixed with wonder. When Tom had finished Mr. Rogers continued to stare at him for a few moments, then brought his fist down on a bell beside him. A boy came hurrying in and the president thundered out the order: "Send the superintendent here at once!"

Within an hour Tom's plan of righting the chimney was begun and within eighteen hours had been completed. The amount of change to swing the top of the chimney into position was a matter of a brief mathematical calculation and was made before the removal of the brickwork was begun. When the woodwork had all been removed by fire the settling was found to be correct and satisfactory, and the stack stood perpendicular.

Mr. Rogers inspected the work, saw that it was good, went to his office and called for Tom Swartout. When Tom reported he hadn't the slightest idea what he was wanted for, The president handed him a check for \$10,000. Tom looked at it, then at Mr. Rogers for an explanation.

"I would gladly have paid an engineer twice that sum," said the president, "for your suggestion. It has saved thousands on the stack—thousands for breach of contracts and thousands, besides, for contingent loss of business."

Tom couldn't get it through his stupid head how a little matter like that should be made so much of.

A few days after this Tom received a leave of absence to go home. Neither his father nor his mother knew him, for he had bought good clothes and looked prosperous. They welcomed him home, and when he set about supplying their every want they were thunderstruck.

"How ever did you do it, Tommy?" asked his mother, beside herself with wonder.

"Oh, I did a little job on a smokestack that any other fellow could have done as well as I, only nobody happened to think of it."

Tom Swartout was given a position at the factory, which had no name. His duties were to think out all sorts of problems that were impossible to others. He was never at a loss for a device and invented methods for expediting and bettering work which put enormous profits into the pockets of his employers and made him rich.

All this his father and mother could never understand.

## PERSIAN BAZAARS

Curious Business Methods of the Oriental Shopkeepers.

HAVE NO GENERAL STORES.

One Merchant Will Sell Only Mustard. Another Nothing but Silk. Another Spices, and So On—Water Is Difficult to Obtain and Is Very Expensive.

One curious thing about the bazaars of Persia, writes Mrs. Mary A. C. Colquhoun in the Los Angeles Times, is the fact that all the shops of one kind are grouped together, and so we speak of the "cloth bazaar," the "hat bazaar," the "shoe bazaar." There are both wholesale and retail shops, but there are no department stores as in America, nor is there such a thing as a general grocery or dry goods store.

One grocer keeps spices only, another tea, coffee, sugar, etc.; one dry goods merchant will sell you mustard, another breadcloth, another silk. There are no large manufacturing factories in Persia. It is common to have a small factory and a shop together or side by side.

All the metal utensils used in the country are made of either brass or copper. These substances are hammered into shape. A siroli through the bazaar where this work is going on gives one the impression that pandemonium has broken loose.

Different kinds of bread are made in the bazaar. One kind which is especially liked by the people and which can be obtained fresh at almost every hour of the day is called "non-issagah," literally little stone bread. It is made by pouring the dough on very hot pebbles, which bake it quickly and give it a crisp crust. Of course it is thin, not more than a quarter of an inch in thickness. The sheet is about a foot and a half wide by two and a half long.

Near the bazaar where this bread is baked you will usually find a place where mutton chops are being cooked on skewers over a charcoal fire. Any one desiring a lunch will buy from the baker a sheet of the thin, crisp, freshly baked bread, then a few "kabobs," as the chops are called. Wrapping the chops in the bread, he will proceed on his way, eating his lunch as he goes.

As you walk through the bazaars or stand to examine or purchase goods, especially if you are a foreigner, you must expect to be jostled, not only by crowds of curious pedestrians, but also by caravans of horses and donkeys and even of vicious camels. You will perhaps have to wait also for the shopkeeper to finish his prayer.

Foreigners usually go to the bazaars not to purchase things, but to see oriental life, and in the bazaars are to be seen many interesting phases of it. When you really wish to buy something you will find the peddler, the supreme nuisance of America, your best friend. He will bring to your door anything that you wish to see and give you all the time that you desire in which to examine it.

You must needs be a haggler to deal with any merchant in Persia, but usually you can make a better bargain in the quiet of your own home than you can make in the bazaar.

Save for one month in the year the bazaars, even in the capital of 350,000 people, are never open at night. During the month when the Persians fast all day it is customary to do some marketing, some business and much visiting at night. Then the food bazaars, tea shops and so forth are open. Pedestrians with huge lanterns of oiled paper and people in carriages give an appearance of life and gaiety to the streets, which is quite unknown at other times.

Many occupations which in western lands are carried on in shops are in Persia carried on in the open air. This is due partly to the poverty of the people, partly to the warmth of the climate, partly to the fact that the Persian is pre-eminently a social being, and with the exception of his domestic life, which is lived in great seclusion behind high walls—he likes to be with his fellow men.

The barber, for example, seldom has a shop and never really needs one. At any street corner you are likely to stumble over a man sitting on a ledge of the wall and being shaved or having his hair cut. It is your own opportunity for seeing a man with his hat off, but as you look at his tanned pate you do not regret that your opportunities in this direction are limited.

The only things that are free in Persia are air and sunshine. Water—not only in the cities, but everywhere—is one of the most expensive commodities and one of the most difficult to obtain. The entire water supply of Teheran comes from the snow on the mountains north of the city. It is brought for a distance of many miles in underground watercourses. There are thirty-four such channels which enter the city.

At various places as they pass along there are openings into these. Through these openings the water is dipped up with a leathery bucket and poured into a goatlike bag, which is slung over the shoulder of the private servant or the professional water carrier. Nothing is more common in the street than a sight of one of these carriers.

Recrimination.

He—My dear, you spend too much money in false hair. Look at your puffs. She—And you spend too much in cigars. Look at your puffs. Both—more American.

There is no happiness like that which comes from doing our level best every day.

## STENCIL LETTERS.

Used by Writers and Illuminators in the Early Ages.

Movable characters were known to the ancients. They were used in teaching children to read. The ancients had also stencil letters, which they used to secure a regular style of penmanship. They even made use of plates, thus open cut, containing an entire page. It was placed on the papyrus to guide the pens of children. "An excellent means," saith Quintilian, "to learn them not to exceed the desired proportions." The Emperor Justinian (A. D. 518) could neither read nor write, an unexampled thing in one of such high rank. When it was necessary for him to sign his name he had a sheet of gold through which were cut the letters of his name. "Then," said Procopius, "placing this tablet on the paper, one conducted the hand of the prince, holding the stylus dipped in purple on the type of the different letters, and took away the writing furnished with his signature." The same thing is reported of King Theodoric and of Charlemagne.

In the middle ages the illuminators and decorators made much of such tablets for tracing involved initial letters and even in a way composed entire works, such as copies of the plain songs, etc. A chartered abbey near Mayence possessed some sixty of the alphabets cut in leaves of latoun, a copper alloy. Later these patterns were replaced by stamps whose imprint is proved by the evidences on the reverse of the page as early as the thirteenth century. In 1288 the monks of Fribourg published a treatise relating to money in this way, and it seems, according to a passage in Pliney and another in Petronius, that these stencils were used to publish figures and designs as well.—Charles W. Hall in National Magazine.

## SUPREME COURT GOWNS.

They Are Made of the Finest Silk and Are Quite Costly.

It is said that the cut and style of the gowns worn by the justices of the supreme court of the United States are so peculiar that it is not always possible to have one correctly made.

The wife of a former justice used to enjoy telling of her trying experiences when she wished to have made in Paris the gown her husband was to use. The gowns worn there by scientists, scholars and students differ altogether from those of our justices wear.

In London any clerical tailor would have understood the kind of gown desired, but not so in Paris. Wherefore, after many failures, the justice's wife gave instructions to the fashionable modiste who made her gowns. This modiste was entirely successful in turning out a gown for the justice.

The justice's gowns, which are always of the best quality of silk, cost upward of \$100. When the supreme court was first organized the justices wore quite gaudy gowns.

A portrait in oil of the first chief justice, John Jay, now hangs in the robing room opposite the supreme court chamber, and in this portrait the chief justice is represented as wearing a black gown with a broad bright red border around the neck and down the front. It is edged with gray, and the sleeves show a red border at the top and bottom, also edged with gray.—Harper's Weekly.

## A Curious Windstorm.

A peculiar freak of weather is the storm called the "williwau." This form of storm is confined to that far-off island Tierra del Fuego. The coast is indented with deep fiords crowned with high mountains. Down from their gorges drops the williwau. A low, hoarse muttering is heard in the distance. Suddenly, without the least preliminary puff, a fearful blast of wind drops upon the sea. The water is not raised into waves, but driven into the dust. Fortunately the shock lasts but ten or twelve seconds, and calm follows at once, for no vessel could stand such a wind for even half a minute. During the coming and going of a williwau the barometer may be watched to drop a tenth of an inch or more and rise again at once.

## She Was a Skeptic.

In pioneer days a settler near the present town of Albany, Mo., bought for his wife the first cook stove ever seen in that part of the state. It was an object of great curiosity, and the woman's next-door neighbor, who lived ten miles away, came to see how it would work. Without comment she saw the dinner cooked. She ate the meal with judgment held in reserve and then remarked, with a shake of the head:

"Well, Sarah, it cooks all right, and the victuals taste good, but I don't believe it will ever be a success."

## Mistakes.

To make mistakes is human. Everybody makes mistakes, the best of us included. To acknowledge mistakes is commendable. It is evidence that one is learning by experience, and it shows that he has the courage to acknowledge a blunder. Courage is a rare quality in these days.—Leslie's.

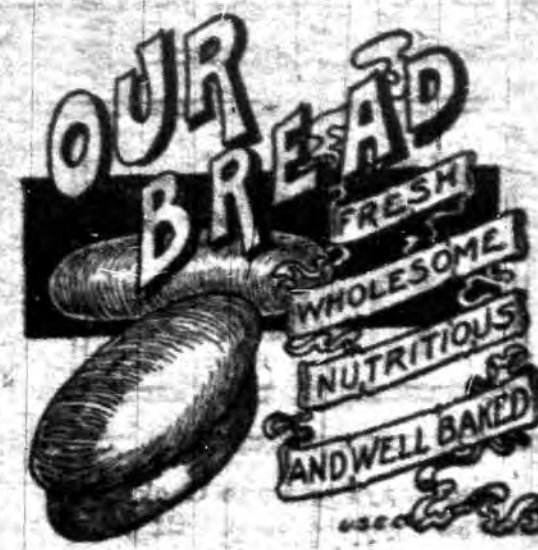
## Badly Expressed.

"Yes, Aunt Mary, I want out without my rubber, and now she is in her ear." "My, my! What dreadful things result from a little carelessness"—Exchange.

## The Wrong Man.

"Just a minute, old chap. You're just the man I want to see." "No, I'm not. I can't spare a cent."—Pittsburgh Post.

If your eyes are always cast down, cobwebs will gather on the ceiling.

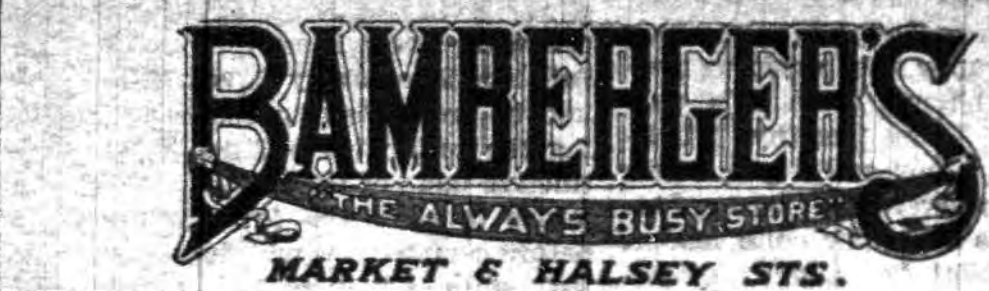


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